

WHAT IS CLAIMED IS:

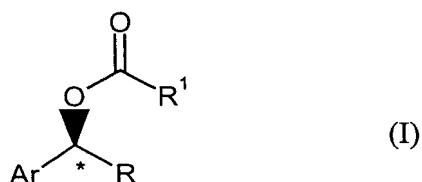
1. Nucleic acids coding for polypeptides which exert the biological activity of an anti-Kazlauskas lipase and comprise an amino acid sequence according to SEQ ID NO: 2.
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2. Nucleic acids according to Claim 1, characterized in that they are single-stranded or double-stranded deoxyribonucleic acids (DNA) or ribonucleic acids (RNA).
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3. Nucleic acids according to Claim 1, characterized in that they are fragments of genomic DNA or cDNA.
4. Nucleic acids according to Claim 1, comprising a sequence selected from
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 - a) the sequence according to SEQ ID NO: 1,
 - b) sequences coding for a polypeptide which comprises the amino acid sequence according to SEQ ID NO: 2,
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 - c) partial sequences of at least 14 base pairs in length of the sequences defined in a) or b),
 - d) sequences hybridizing to the sequences defined in a) or b),
25
 - e) sequences which are at least 70% identical to the sequences defined in a),

- f) sequences which are at least 70% identical to the sequences defined in b),
- g) sequences which are complementary to the sequences defined in a) or b), and
- h) sequences which code for the same amino acid sequence as the sequences defined under a) to f), owing to the degeneracy of the genetic code.
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- 10
5. DNA construct comprising a nucleic acid according to Claim 1 and a heterologous promoter.
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6. Vector comprising a nucleic acid according to Claim 1 or a DNA construct comprising said nucleic acid and a heterologous promoter .
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7. Host cell containing a nucleic acid according to Claim 1, a DNA construct comprising said nucleic acid and a heterologous promoter, or a vector comprising said nucleic acid or said DNA construct and a heterologous promoter.
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8. Host cell according to Claim 7, characterized in that it is a prokaryotic cell.
9. Method for preparing a nucleic acid according to Claim 1, comprising
- (i) chemically synthesizing the nucleic acid or
- (ii) a) chemically synthesizing oligonucleotides,

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- b) radiolabelling or labelling the oligonucleotides with a fluorescent dye,
- c) hybridizing the labelled oligonucleotides to DNA of a genomic or cDNA bank generated, starting from plant mRNA or genomic DNA,
- d) selecting clones which the labelled oligonucleotides hybridize and
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- e) isolating the hybridized DNA, or
- (iii) chemically synthesizing oligonucleotides and amplifying them by means of PCR.
- 15
10. Polypeptide having the biological activity of an anti-Kazlauskas lipase, which is encoded by a nucleic acid according to Claim 1.
11. Polypeptide having the biological activity of an anti-Kazlauskas lipase, which comprises an amino acid sequence which is at least 60% identical to an amino acid sequence according to SEQ ID NO: 2 across at least the section from amino acid 110 to amino acid 280.
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12. Method for preparing a polypeptide according to Claim 10 characterized in that
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- the preparation is carried out using **chemical methods** or

host cells grown under conditions allowing expression of a nucleic acid ,
the grown host cells are harvested and the polypeptide is recovered
therefrom and, where appropriate, purified.

- 5 13. Method for preparing compounds of the formula (I)



where the formula (I) indicates the absolute configuration of the product,
and in which

* indicates a stereogenic carbon atom and

Ar is C₅-C₁₄-aryl and

R is cyano, C₁-C₁₂-alkyl, C₁-C₁₂-haloalkyl, C₅-C₁₁-arylalkyl or radicals of the formulae (IIa) to (IIf),

A-B-D (IIa)

A-D (IIb)

$$\text{A-SO}_2\text{-R}^3 \quad (\text{IIc})$$
$$\text{A-SO}_3\text{W} \quad (\text{IIId})$$

A-COW (Ile)

$$\text{A-N}_3 \quad (\text{IIf})$$

in which, independently of one another,

A is absent or is a C₁-C₈-alkylene radical and

B is a carbonyl group and

D is R², OR², NHR³ or N(R³)₂,

where R² is C₁-C₈-alkyl, C₆-C₁₅-arylalkyl, C₁-C₈-haloalkyl or C₅-C₁₄-aryl and

R³ is, in each case independently, C₁-C₈-alkyl, C₆-C₁₅-arylalkyl or C₆-C₁₄-aryl or N(R³)₂ together is a cyclic amino radical, and

W is OH, NH₂, or OM, where M may be an alkali metal ion, half an equivalent of an alkaline earth metal ion, an ammonium ion or an organic ammonium ion, and

R¹ is C₁-C₁₂-alkyl, C₁-C₁₂-haloalkyl, C₅-C₁₁-arylalkyl, C₄-C₁₀-aryl,

comprising reacting

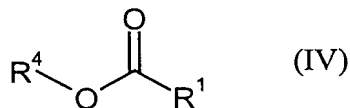
stereoisomer mixtures of compounds of the formula (III)



in which

*, Ar and R are as defined in the formula (I)

with compounds of the formula (IV)



5 in which

R^1 is as defined in the formula (I), and

10 R^4 is $\text{C}_1\text{-C}_{12}$ -alkyl, $\text{C}_4\text{-C}_{10}$ -aryl, $\text{C}_5\text{-C}_{11}$ -arylalkyl, $\text{C}_2\text{-C}_8$ -alkenyl or $\text{C}_1\text{-C}_{12}$ -haloalkyl

in the presence of polypeptides of the invention, which exert the biological activity of an anti-Kazlauskas lipase.

15 14. Method according to Claim 13, characterized in that Ar is phenyl, naphthyl, pyridinyl, oxazolyl, thiophenyl, furanyl, benzofuranyl, benzothiophenyl, dibenzofuranyl, dibenzothiophenyl, indolyl, pyridazinyl, pyrazinyl, imidazolyl, pyrimidinyl or quinoliny, which is optionally
20 unsubstituted or further substituted with one, two or three or four radicals per cycle, the said radicals being selected from the group consisting of hydroxy, fluoro, chloro, bromo, nitro, cyano, $\text{C}_1\text{-C}_8$ -alkyl, $\text{C}_1\text{-C}_8$ -perfluoroalkyl, $\text{C}_1\text{-C}_8$ -alkoxy, $\text{di}(\text{C}_1\text{-C}_4\text{-alkyl})\text{amino}$, $\text{COO}(\text{C}_1\text{-C}_4\text{-alkyl})$, $\text{NHCO}(\text{C}_1\text{-C}_4\text{-alkyl})$, $\text{CON}(\text{C}_1\text{-C}_4\text{-alkyl})_2$, $\text{COO}(\text{C}_6\text{-C}_{11}\text{-arylalkyl})$, $\text{C}_6\text{-C}_{11}$ -arylalkyl or $\text{C}_5\text{-C}_{10}$ -aryl.

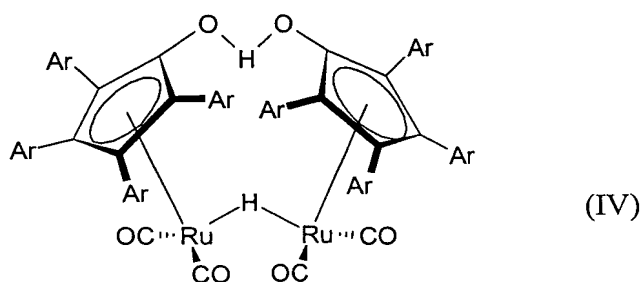
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15. Method according to Claim 13, characterized in that the compound of the formula (III) used is p-chlorobenzoyl acetate, ethyl acetate, isopropyl butyrate, isopropyl acetate, isopropentyl acetate or trifluoroethyl butyrate.

16. Method according to Claim 13, characterized in that the stereoisomer mixtures used are racemic mixtures of compounds of the formula (II).
- 5 17. Method according to Claim 13, characterized in that the reaction is stopped when conversion of the stereoisomer mixture employed at the start reaches 60 to 100% of the percentage of (S)-configured alcohol of the formula (II).
- 10 18. Method according to Claim 13, characterized in that the method is carried out in the presence of a catalyst which racemizes the stereoisomer-enriched mixtures of compounds of the formula (II).
19. Method according to Claim 18, characterized in that the catalysts used are those containing ruthenium complexes.
- 15 20. Method according to Claim 18, characterized in that the catalysts used are those containing

a) ruthenium complexes of formula (IV),

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in which

Ar is, in each case independently, phenyl which is unsubstituted or mono-, di-, tri- or tetrasubstituted with C₁-C₄-alkyl,

and/or

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b) ruthenium complexes of the formula (V),



in which

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Aren is a coordinated aromatic compound having from 6 to 12 ring carbons, which is optionally furthermore substituted with up to 6 radicals which are, in each case independently of one another, selected from the group consisting of C₁-C₈-alkyl, benzyl and phenyl and

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X is chlorine, bromine or iodine, preferably chlorine

and/or

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c) ruthenium complexes of the formula (VI),

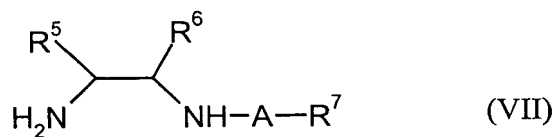


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where

Aren and X are in each case as defined in formula (V) and (VII) is secondary or tertiary diamines, monoacylated or monosulphonated diamines, amino alcohols, amino acids and amino acid amides.

21. Method according to Claim 20, characterized in that in the formula (VI) (VII) represents compounds of the formula (VII),



5 in which

R^5 and R^6 are, in each case independently of one another, hydrogen, $\text{C}_1\text{-C}_{20}$ -alkyl, $\text{C}_4\text{-C}_{15}$ -aryl or $\text{C}_5\text{-C}_{16}$ -arylalkyl, or R^5 and R^6 together are a straight-chain or branched $\text{C}_3\text{-C}_{12}$ -alkylene radical, and

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R^7 is $\text{C}_1\text{-C}_{20}$ -alkyl, $\text{C}_1\text{-C}_{20}$ -fluoroalkyl or $\text{C}_4\text{-C}_{15}$ -aryl, and

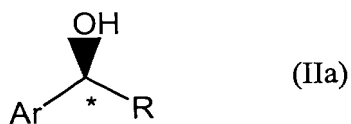
A is SO_2 or CO.

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22. Method according to Claim 18, characterized in that the catalyst is used in the presence of a base.

23. Method according to Claim 18, characterized in that in a further step the compounds of the formula (I) are saponified to give compounds of the formula (IIa)

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in which

*, Ar and R are as defined in the formula (I) in Claim 18.

24. Method for preparing compounds of the formula (IIa)

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in which

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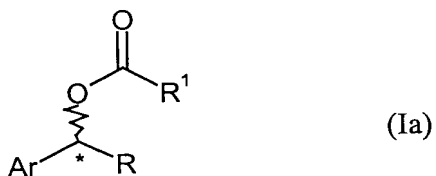
Ar and R are as defined in the formula (I) in Claim 13, and

* indicates an (S)-stereogenic carbon atom in its absolute configuration,

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comprising hydrolyzing

stereoisomer mixtures of the formula (Ia)



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in which

Ar, R and R¹ are as defined in the formula (I), and

* indicates an (S)-stereogenic carbon atom

in the presence of polypeptides according to at least one of Claims
10 and 11.

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25. A process for preparing medicaments or agrochemicals or for the
preparation of intermediates of medicaments or agrochemicals comprising
incorporating the compounds prepared according to Claim 13.